

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JESSE HULL, PHILIP A. CHOU,
GARY E. KOPEC
and DENNIS S. ARNON

Appeal No. 2001-0872
Application No. 08/880,137

ON BRIEF

Before HAIRSTON, BARRETT, and LEVY, Administrative Patent Judges.
HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 25. In an Amendment After Final (paper number 13), claims 1, 13 and 19 were amended.

The disclosed invention relates to a method and apparatus for operating a processor-controlled machine to determine an unknown value of a text image layout parameter that is used with a two-dimensional (2D) image model.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A method for operating a processor-controlled machine to determine an unknown value of a text image layout parameter used with a two-dimensional (2D) image model; the machine including a signal source for receiving data; memory for storing data; and a processor connected for accessing instruction data which is stored in the memory for operating the machine; the processor being further connected for receiving data from the signal source; and connected for storing data in the memory; the method comprising:

obtaining a data structure indicating a 2D image model modeling as an image grammar

an image layout structure common to a class of 2D text images; the 2D image model including a production rule indicating that first and second image constituents occurring in a 2D text image consistent with the image layout structure produce a third image constituent occurring therein; the production rule including a text image layout parameter that indicates the spatial relationship between the first and second image constituents; a value of the text image layout parameter being unknown;

receiving a plurality of input two-dimensional (2D) text image data structures from the

signal source; each input 2D text image represented by the plurality of input 2D text image data structures having the image layout structure common to the class of 2D text images and including at least one occurrence of first and second image constituents;

for each respective input 2D text image,

producing a data structure, using the 2D image model, indicating first and

second image positions in the input 2D text image identifying respective locations of the first and second image constituents therein; and

obtaining document-specific measurement data about the first and second image

constituents from the data structure; and

computing a value for the text image layout parameter using the document-specific

measurement data obtained from the data structures for the respective input 2D

text images; the value computed for the text image layout parameter representing a class-specific value for all text images in the class of 2D input text images being modeled by the 2D image model.

The references relied on by the examiner are:

Chou	5,020,112	May 28, 1991
Melen	5,719,960	Feb. 17, 1998
		(filed June 26, 1996)

Chou et al. (Chou), "A Stochastic Attribute Grammar Model of Document Production and its use in Document Image Decoding," SPIE, Vol. 2422, 1995, pages 66 through 73 (hereinafter referred to as Kopec, the co-author of the publication).

Claims 1 through 11 and 13 through 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Kopec.

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Kopec and Melen.

Reference is made to the brief (paper number 14) and the answer (paper number 16) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 25.

With the exception of the examiner's finding (answer, pages 4 and 5) that Chou teaches training image, the appellants have not challenged the examiner's findings (answer, pages 3

through 9) concerning the teachings of Chou and Kopec. According to the examiner, Chou teaches “computing probability as a layout parameter” (answer, page 4), and “using the values from training images (templates, col. 4, lines 15-35)” (answer, page 5).

Appellants argue (brief, pages 9 through 12) that the references of record neither teach nor would have suggested to one of ordinary skill in the art to train a processor-controlled machine to determine an unknown value of a text image layout parameter used with a two-dimensional image model. Although appellants acknowledge (brief, page 10) that “Chou does disclose a ‘training mode’ . . . at column 4, lines 9-33, col. 9, lines 45-51, and col. 10, lines 1-16,” they do indicate, however, that “Chou’s ‘training mode’ refers to the possibility of re-training probabilities associated with the objects in Chou’s library of bitmapped templates” (brief, page 11). Appellants’ argue (brief, page 11) that:

It is important to observe that these trained and retrained probabilities do not correspond in any way to the layout parameters trained in Applicants’ current invention. Probabilities, quite simply, are not layout parameters as defined by Applicants. See Applicants’ specification, which expressly states, “a text image layout parameter does not include a probability parameter that may be associated with or included in a 2D image model, since a probability parameter is not a quantity on which a layout procedure depends to map an image constituent from its symbolic description of its location in a text image to an actual physical location in the image.” Page 34, lines 6-10. Contrary to the Examiner’s unsubstantiated assertion, Chou does not teach parameterizing x-y coordinates, point size, or any other layout parameters in any manner similar to Applicants’.

In response to appellants’ arguments, the examiner now contends (answer, page 11) that:

Examiner was relying upon Kopec to teach layout parameters are determined from the individual image constituents such as “f and g” on page 69. And training of such would be obvious in light of Chou because the layout parameters must be calculated

prior to the probability and one of ordinary skill in the art would be able to determine unknown parameters if the other parameters were known.

We agree with appellants' arguments concerning the teachings of Chou and their own teaching (specification, page 34, lines 6 through 10) that a probability parameter is not to be equated with a text image layout parameter. With respect to the teachings of Kopec, we find that the encoder portion of the document recognition components (Figure 1) contains "synthesized *box metric* attributes" (page 68). Appellants acknowledge (specification, page 42, lines 17 through 20) that "the synthesized attributes (i.e., the box metrics) . . . describe the layout of the image constituents and essentially characterize the layout of two image constituents in the image with respect to each other; these coefficients are called the layout parameters." It follows then that the teachings of Kopec are concerned with layout parameters. Notwithstanding the disclosure of layout parameters in Kopec, we find that Kopec is not concerned, however, with computing an unknown value for the layout parameters as required by each of the claims on appeal. Accordingly, the obviousness rejection of claims 1 through 11 and 13 through 25 is reversed.

The obviousness rejection of claim 12 is reversed because the additional teachings of Melen do not cure the noted shortcomings in the teachings of Chou and Kopec.

DECISION

Appeal No. 2001-0872
Application No. 08/880,137

The decision of the examiner rejecting claims 1 through 25 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON
Administrative Patent Judge

LEE E. BARRETT
Administrative Patent Judge

STUART S. LEVY
Administrative Patent Judge

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Appeal No. 2001-0872
Application No. 08/880,137

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